

WHAT IS CLAIMED IS:

1. A transflective type LCD device having a pixel region with a reflective part and a transmitting part comprising:

a plurality of gate and data lines crossing each other on a substrate defining a plurality of pixel regions;

a thin film transistor having a drain electrode at a crossing point of the gate and data lines;

a lower storage electrode formed by a portion of a preceding gate line and an upper storage electrode above the lower storage electrode having a gate insulating layer in between wherein the upper storage electrode contacts the drain electrode;

a transmitting electrode in contact the upper storage electrode; and

a reflective electrode in contact with the transmitting electrode in the reflective part of the pixel region wherein the transmitting electrode is in between the reflective electrode and the substrate.

2. The transflective type LCD device of claim 1, wherein the transmitting electrode is formed in direct contact with the drain electrode of the thin film transistor and the upper storage electrode.

3. The transflective type LCD device of claim 1, wherein a passivation layer is interposed between the transmitting electrode and the reflective electrode in the reflective part of the pixel region.

4. The transflective type LCD device of claim 3, wherein the passivation layer has projection patterns in the reflective part.

5. The transflective type LCD device of claim 3, wherein:
the passivation layer has a first transmitting hole with an inclination exposing a predetermined portion of the transmitting electrode; and
the reflective electrode is on the inclination of the passivation layer and the bottom corners of the first transmitting hole.

6. The transflective type LCD device of claim 1, wherein the reflective electrode is formed in a dual-layered structure of any one of Mo-Al and Mo-AlNd.

7. A transflective type LCD device having a pixel region with a reflective part and a transmitting part comprising:

a plurality of gate and data lines crossing each other on a substrate defining a plurality of pixel regions;

a thin film transistor having a drain electrode at a crossing point of the gate and data lines;

an upper storage electrode of a storage capacitor at a preceding gate line integral with a drain electrode of the thin film transistor;

a transmitting electrode in the pixel region in contact with the upper storage electrode;

a passivation layer including a first transmitting hole with an inclination exposing a predetermined portion of the transmitting electrode; and

a reflective electrode on the inclination of the passivation layer and bottom corners of the first transmitting hole.

8. The transflective type LCD device of claim 7, wherein the reflective electrode is in contact with the transmitting electrode at the bottom of the first transmitting hole.

9. The transflective type LCD device of claim 7, wherein the passivation layer has projection patterns in the reflective part.

10. A transflective type LCD device having a pixel region with a reflective part and a transmitting part comprising:

- a plurality of gate and data lines crossing each other on a substrate defining a plurality of pixel regions;

- a thin film transistor having a drain electrode at a crossing point of the gate and data lines;

- an upper storage electrode of a storage capacitor at a preceding gate line separated from the drain electrode;

- a transmitting electrode in the pixel region in contact with the drain electrode and the upper storage electrode;

- a passivation layer including a first transmitting hole with an inclination exposing a predetermined portion of the transmitting electrode; and

- a reflective electrode in the reflective part of the pixel region wherein the transmitting electrode is in contact with the reflective electrode by a second transmitting hole in the passivation layer..

11. The transflective type LCD device of claim 10, wherein the passivation layer has projection patterns in the reflective part and thereby the reflective layer has an uneven surface.

12. The transflective type LCD device of claim 10, wherein a lower storage electrode of the storage capacitor is formed on the same plane as the gate line corresponding to a preceding gate line.

13. The transflective type LCD device of claim 10, wherein the reflective electrode is in contact with the transmitting electrode at the bottom of the first transmitting hole.

14. The transflective type LCD device of claim 10, wherein the reflective electrode is formed in a dual-layered structure of any one of Mo-Al and Mo-AlNd.

15. A transflective type LCD device having a reflective part and a transmitting part in a unit pixel region comprising:

- a plurality of gate and data lines crossing each other on a substrate defining a plurality of pixel regions;

- a thin film transistor having a drain electrode at a crossing point of the gate and data lines;

- a lower storage electrode formed of a portion of a preceding gate line, and an upper storage electrode above the lower storage electrode having a gate insulating layer in between;

- a buffer insulating layer on the substrate with the thin film transistor having a contact hole at a predetermined portion of the upper storage electrode;

- a transmitting electrode in the pixel region in contact with the upper storage electrode through the contact hole; and

- a reflective electrode in the reflective part of the pixel region.

16. The transflective type LCD device of claim 15, wherein the buffer insulating layer is formed of a silicon nitride layer.

17. The transflective type LCD device of claim 15, wherein a passivation layer is interposed between the transmitting electrode and the reflective electrode in the reflective part of the pixel region.

18. The transflective type LCD device of claim 17, wherein the passivation layer has projection patterns in the reflective part.

19. The transflective type LCD device of claim 17, wherein:
the passivation layer has a first transmitting hole with an inclination exposing a predetermined portion of the transmitting electrode; and
the reflective electrode is on the inclination of the passivation layer and the bottom corners of the first transmitting hole.

20. A method of manufacturing a transflective type LCD device having a pixel region with a reflective part and a transmitting part comprising:

forming a plurality of gate lines in one direction and gate electrodes protruding from the gate lines;

forming a plurality of data lines substantially perpendicular to the plurality of gate lines to define pixel regions and source electrodes protruding from the data lines at one side;

forming a drain electrode integral with an upper storage electrode of a preceding gate line, the drain electrode forming a thin film transistor along with the gate electrode and the source electrode;

forming a transmitting electrode in the pixel region in contact with the upper storage electrode;

forming a passivation layer having a transmitting hole exposing one portion of the transmitting electrode; and

forming a reflective electrode in the reflective part of the pixel region in contact with the transmitting electrode.

21. The method of claim 20, wherein the reflective electrode is formed at the edge of the transmitting hole in contact with the transmitting electrode.

22. The method of claim 20, wherein the reflective electrode is formed by depositing a first metal having low resistance and a second metal having great reflectivity.

23. The method of claim 22, wherein the first metal is Mo, and the second metal is one of Al and AlNd.

24. The method of claim 20, wherein the transmitting electrode is formed of one of Indium-Tin-Oxide ITO and Indium-Zinc-Oxide IZO.

25. The method of claim 20, wherein the passivation layer is formed of one of benzocyclobuten BCB and photoacrylic resin.

26. The method of claim 20, wherein the transmitting electrode is formed in contact with the drain electrode and the upper storage electrode.

27. The method of claim 20, further comprising:

sequentially depositing first and second passivation layers on an entire surface of the substrate;

forming projections patterns in the second passivation layer corresponding to the reflective part by an exposure and developing process; and

forming a transmitting hole for exposing one portion of the transmitting electrode of the pixel region by a photo process.

28. A method for manufacturing a transflective type LCD device having a pixel region with a reflective part and a transmitting part comprising:

forming a plurality of gate lines in one direction and gate electrodes protruding from the gate lines;

forming a gate insulating layer on a substrate including the gate electrodes;

forming a semiconductor pattern having first and second semiconductor layers on the gate insulating layer above the gate electrode, thereby forming a thin film transistor with the drain electrode, the gate electrode, and the source electrode;

forming a plurality of data lines substantially perpendicular to the plurality of gate lines to define pixel regions and source electrodes protruding from the data lines at one side;

forming a drain electrode integral with an upper storage electrode of the preceding gate line;

forming a transmitting electrode in the pixel region in contact with the upper storage electrode;

forming an active layer and an ohmic contact layer with an etching process of the semiconductor pattern by using the source/drain electrode as masks;

forming a passivation layer having a transmitting hole for exposing one portion of the transmitting electrode; and

forming a reflective electrode in the reflective part of the pixel region in contact with the transmitting electrode.

29. The method of claim 28, wherein the first semiconductor layer is an amorphous silicon layer and the second semiconductor layer is a doped amorphous silicon layer.

30. The method of claim 28, wherein the transmitting electrode is formed in a wet-etch process.

31. The method of claim 28, wherein the reflective electrode is formed at the edge of the transmitting hole in contact with the transmitting electrode.

32. The method of claim 28, wherein the reflective electrode is formed by depositing a first metal having low resistance and a second metal having great reflectivity.

33. The method of claim 28, wherein the first metal is Mo, and the second metal is one of Al and AlNd.

34. A method for manufacturing a transreflective type LCD device having a unit pixel region with a reflective part and a transmitting part comprising:

forming a plurality of gate lines in one direction and gate electrodes protruding from the gate lines;

forming a plurality of data lines substantially perpendicular to the plurality of gate lines to define pixel regions and source electrodes protruding from the data lines at one side;

forming a drain electrode integral with an upper storage electrode of the preceding gate line, the drain electrode forming a thin film transistor along with the gate electrode and the source electrode;

forming a buffer insulating layer with a contact hole adjacent to the upper storage electrode on a substrate including the thin film transistor;

forming a transmitting electrode in the pixel region in contact with the upper storage electrode through the contact hole;

forming a passivation layer having a transmitting hole exposing one portion of the transmitting electrode; and

forming a reflective electrode in the reflective part of the pixel region in contact with the transmitting electrode.

35. The method of claim 34, wherein the buffer insulating layer is formed of a silicon nitride layer.

36. The method of claim 34, wherein the contact hole is formed by forming a photoresist pattern to open one portion of the upper storage electrode on the buffer insulating layer and etching the buffer insulating layer with the photoresist pattern as a mask.

37. The method of claim 34, further comprising:

forming a gate insulating layer on the substrate including the gate electrode after forming the gate line;

forming a semiconductor pattern having first and second semiconductor layers on the gate insulating layer above the gate electrode; and

forming an active layer and an ohmic contact layer with an etching process of the semiconductor pattern by using the source/drain electrode as masks.

38. The method of claim 34, wherein the transmitting electrode is formed using a wet-etch process.

39. A transfective type LCD device having a pixel region including transmitting and reflective regions comprising:

a plurality of gate and data lines on a substrate each gate line substantially perpendicular to each data line defining the pixel region;

a thin film transistor at a crossing point of the gate and data lines;

gate and source pads respectively having first and second holes at end portions of the gate and data lines,

a transmitting electrode in the pixel region connected to a drain electrode of the thin film transistor;

gate and source pad terminals being in contact with the gate and source pads through the first and second holes;

an insulating layer on the substrate including the transmitting electrode that surrounds sidewalls of the gate and source pads;

a projection pattern above the reflective region; and

a reflective electrode in the reflective region including the projection pattern to expose a predetermined portion of the transmitting electrode.

40. The transflective type LCD device of claim 39, further comprising a passivation layer is formed above the transmitting electrode and the insulating layer.

41. The transflective type LCD device of claim 39, wherein the transmitting electrode and the gate and source pad terminals are formed of one of Indium-Tin-Oxide ITO, Tin-Oxide TO, Indium-Zinc-Oxide IZO and Indium-Tin-Zinc-Oxide ITZO.

42. The transflective type LCD device of claim 39, wherein the insulating layer is formed of silicon nitride.

43. The transflective type LCD device of claim 39, wherein the insulating layer is extended at minimum of 3 μm from the sidewalls of the gate and source pads.

44. The transflective type LCD device of claim 39, wherein an insulating layer is formed below the transmitting electrode with a contact hole on the drain electrode of the thin film transistor.

45. The transflective type LCD device of claim 39, wherein the reflective electrode is overlapped with the data line defining the pixel region.

46. The transflective type LCD device of claim 39, wherein the reflective electrode has a dual-layered structure of one of Mo-Al and Mo-AlNd.

47. The transflective type LCD device of claim 39, further comprising a lower storage electrode formed integral with a preceding gate line, and an upper storage electrode above the lower storage electrode having a gate insulating layer in between.

48. The transflective type LCD device of claim 39, wherein the transmitting electrode is overlapped with the upper storage electrode and the drain electrode of the thin film transistor in contact thereto.

49. The transflective type LCD device of claim 39, wherein the drain electrode extends to the pixel region connected with the upper storage electrode.

50. The transflective type LCD device of claim 39, wherein a semiconductor layer is formed to have a predetermined space below the source pad, and a predetermined portion of the semiconductor layer is exposed by the second hole.

51. The transflective type LCD device of claim 39, further comprising bonding bumps to connect the gate pad terminal to the source pad terminal.